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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/825,264

04/15/2004

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EXAMINER

MUHAMMED, ABDUKADER S

ART UNIT

PAPER NUMBER

2627

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/825,264	<b>Applicant(s)</b> WATANABE ET AL.	
	<b>Examiner</b> Abdukader Muhammed	<b>Art Unit</b> 2627	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 April 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-50 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Drawing*

2. Figures 7-9 should be designated by a legend such as **--Prior Art--** because only that which is old is illustrated (see the discussion in the description of the related art section page 7-11). See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-5, 9-10, and 12-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Oshima et al. (US 6,266,299 B1).

Regarding Claim 1, Oshima et al. teach a magneto-optical disk having a recording layer made of a magnetic film having magnetic anisotropy in a vertical direction to a film surface of a substrate on the substrate (recording layer includes a magnetic film with a magnetic anisotropy in a direction perpendicular to a surface of the magnetic film; see column2, lines 44-47 and figure 2-3), wherein said recording layer comprises:

a main recording region for recording first information (main data area where CLV recording is done; see figure 19), a sub recording region formed on an inner circumference side from said main recording region and recording second information including disk discrimination information (BCA or barcode area at the inner circumference; see figure 19), and a buffer region formed between said main recording region and said sub recording region and recording third information (part of the main data area is used as TOC or control data area 936; see figure 19), wherein said second information is recorded in a form of a mark array formed in stripe shapes in said sub recording region and said buffer region (BCA is formed as stripes; see figure 19), a plurality of marks constituting said mark array being parts changed in magnetization state of said recording layer (the write once information, BCA, is recorded by decreasing or eliminating the magnetic anisotropy of the recording layer; see column 5, lines 63-66), and wherein said third information can be reproduced by a modulation signal of a reflection ratio along a circumferential direction of the magneto-optical disk (control data is recorded and reproduced by EFM modulation; see column 31, lines 41-42).

Regarding Claims 2 and 3, as applied to claim 1 above and Oshima et al. further teach that the stripe mark is formed by irreversible elimination or degradation of the magnetism of said recording layer (the write once information, BCA, is recorded by decreasing or eliminating the

magnetic anisotropy of the recording layer; see column 5, lines 63-66) and/or formed by inverting the magnetization of said recording layer (partially changing the magnetic anisotropy in the direction perpendicular to the surface of the magnetic layer; see column 5, lines 7-11).

Regarding Claim 4, as applied to claim 1 above and Oshima et al. further teach that the stripe mark array is formed meandering along the circumferential direction of the disk and a size of said buffer region in the disk radial direction has at least the amplitude of said meandering (when the second recording areas are formed, a laser light source is pulsed in accordance with a modulation signal of phase-encoded write-once information, and the optical disk or the laser light is rotated; see column 5, lines 60-67).

Regarding Claim 5, as applied to claim 4 above and Oshima et al. further teach that each of the mark comprises a plurality of mark elements formed connected in at least a radial direction of said magneto-optical disk, said mark array comprises a plurality of mark element arrays formed substantially concentrically, and said mark element arrays comprise pluralities of mark elements formed along a circumferential direction of said magneto-optical disk (stripe-shaped marks that are oblong in a radial direction of the disk are formed and the plurality of the marks is arranged in a circumferential direction of the disk; see column 2, lines 53-57).

Regarding Claims 9 and 10, as applied to claim 1 above and Oshima et al. further teach that the third information includes control data indicating physical attributes of said magneto-optical disk and said third information is recorded by pits (a stripe existence identifier 937 is recorded as a pit signal in the TOC or control data area; see column 29, lines 26-28).

Regarding Claim 12, as applied to claim 1 above and Oshima et al. further teach that the first information is reproduced based on rotation of a polarization direction of light striking said main recording region, and said second information is reproduced based on rotation of a polarization direction of light striking at least one of said sub recording region and said buffer region (for the reproduction of the recording signal, a laser beam with less intensity than the laser beam for recording or erasing irradiates the recording layer. The recording state of the recording layer, that is, the rotation of the polarization plane of the light that is reflected or transmitted in accordance with the orientation of the magnetic field is detected by a photo detector through the change in the intensity of the irradiated light; see column 1, lines 51-60 for overlapping area see column 7, lines 61-67).

Regarding Claim 13, as applied to claim 12 above and Oshima et al. further teach that the first information is reproduced by heating part of said recording layer by focusing of light, said recording layer is a multiple layer film comprised of at least a first magnetization layer, a second magnetization layer, and a third magnetization layer stacked together, and among a Curie temperature  $T_{c1}$  of said first magnetization layer, a Curie temperature  $T_{c2}$  of said second magnetization layer, and a Curie temperature  $T_{c3}$  of said third magnetization layer, a Curie temperature  $T_{c2}$  of said second magnetization layer is the lowest (and a tri-layer recording layer comprising a magnetic reproduction film 233, an intermediate magnetic film 234, and a magnetic recording film 235 is formed on top of the dielectric layer 232; see column 19, Lines 3-7 and figure 2. The curie temperatures are  $T_{c1}=300^{\circ}\text{C}$ ,  $T_{c2}=120^{\circ}\text{C}$ , and  $T_{c3}=230^{\circ}\text{C}$ ; see column 19, lines 27-33 and column 19, lines 47-55).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oshima et al. (US 6,266,299 B1).

Regarding Claims 6-8, Oshima et al. teach the limitations of claim 5 for the reasons discussed above. Oshima et al. also teach the mark element is formed by focusing pulse light having a predetermined beam shape, each said mark element array is formed by focusing said pulse light at a predetermined position while rotating said magneto-optical disk, said mark element arrays are formed by focusing said pulse light at different positions from each other (when the second recording areas are formed, a laser light source is pulsed in accordance with a modulation signal of phase-encoded write-once information, and the optical disk or the laser light is rotated; see column 5, lines 60-67). Oshima et al. differ from the claimed invention in that they do not specifically show that meandering is caused by eccentricity of the disk or wobbling of a shaft that rotates disk and also the amplitude of meandering includes an offset of an actual center of rotation of said magneto-optical disk and an ideal center axis of said magneto-optical disk. It would have obvious to one of ordinary skill in the art at the time the invention was made to make a wobble or zigzag mark on the disk, either the disk has to rotate with a

displaced center or the laser has to be displaced and the amplitude of meandering will also depend on the displacement.

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oshima et al. (US 6,266,299 B1) as applied to claim 1, above, further in view of Tomita et al. (US Publication 2003/0202436 A1).

Regarding claim 11, Oshima et al. teach the limitations claim 1 for the reasons discussed above. Oshima et al. differ from the claimed invention in that they do not specifically show that the third information is recorded by a wobbling groove.

Tomita et al. on the other hand discloses a recording disc with three information areas, BCA 140, main data area 110, and lead-in area 120, wherein the lead-in area is recorded by a wobble groove (see figure 12). It would have obvious to one of ordinary skill in the art at the time the invention was made to make a to record information by a wobbling groove since it has been frequently used for better addressing schemes.

15. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Oshima et al. (US 6,266,299 B1).

Regarding Claim 14, Oshima et al. teach the limitations of claim 1 for the reasons discussed above. Oshima et al. differ from the claimed invention in that they do not specifically show that the sub-recording region is formed to a radius of 14.5 to 15.7 mm, and the buffer region is formed to a radius of 15.7 to 16.0 mm.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the size of the sub-recording region and the buffer region of Oshima et al.



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with such dimensions as set forth, supra through obvious routine lab experimentation and optimization in order to make enough room for the main information area, thus to improve/maximize the recording density of the disk. Additionally, it has been held that changes in size and shape of parts of an invention in the absence of an unexpected result involves routine skill in the art. See *In re Dailey*, 93 USPQ 47 (CCPA 1966).

8. Claim 15-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oshima et al. (US 6,266,299 B1) as applied to claim 1, above, further in view of Tomita et al. (US Publication 2003/0202436 A1).

Regarding Claims 15-22, method claims 15-22 are drawn to the method of using the corresponding apparatus, recording medium, claimed in claims 1-14. Therefore method claims 15-22 correspond to apparatus claims 1-14 and are rejected for the same reasons of obviousness as used above.

Regarding Claims 23-25, method claims 23-25 are drawn to the method of using the corresponding apparatus, recording medium, claimed in claims 1-14. Therefore method claims 23-25 correspond to apparatus claims 1-14 and are rejected for the same reasons of obviousness as used above.

Regarding Claims 26-32, method claims 26-32 are drawn to the method of using the corresponding apparatus, recording medium, claimed in claims 1-14. Therefore method claims 26-32 correspond to apparatus claims 1-14 and are rejected for the same reasons of obviousness as used above.

Regarding Claims 33-40, claims 33-40 are recording apparatus claims for recording/reproducing information on/from recording medium, claimed in claims 1-14, which have similar limitations with claims 15-22 and rejected for the same reasons.

Regarding Claims 41-43, claims 41-43 are recording apparatus claims for recording/reproducing information on/from recording medium, claimed in claims 1-14, which have similar limitations with claims 23-25 and rejected for the same reasons.

Regarding Claims 44-50, claims 44-50 are recording apparatus claims for recording/reproducing information on/from recording medium, claimed in claims 1-14, which have similar limitations with claims 26-32 and rejected for the same reasons.

### ***Conclusion***

9. The prior art made of record in PTO-892 Form and not relied upon is considered pertinent to applicant's disclosure.

Miyatake et al. (US 2004/0047252 A1), Gotah et al. (US 6052465), Shoji et al. (US 2003/0185128 A1), and Irie et al. (US 7061850 B1) teach a recording medium with a bar-code area, control data area, and main information recording area.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Abdukader Muhammed whose telephone number is (571) 270-1226. The examiner can normally be reached on Monday-Thursday 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wayne Young can be reached on (571) 272-7582. Customer Service can be reached

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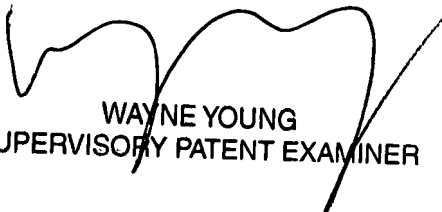
at (571) 272-2600. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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09 August 2007

  
WAYNE YOUNG  
SUPERVISORY PATENT EXAMINER